

What is claimed is:

1. An optical-amplifier supervisory control method
in an optical node including an optical pre-amplifier
5 and an optical post-amplifier, comprising:
 automatically controlling the gain of the optical
post-amplifier; and
 starting the optical pre-amplifier in an automatic
level control mode when starting the optical
10 pre-amplifier, controlling the optical pre-amplifier
in an automatic gain control mode when it is in routine
operation, and executing an automatic level control in
each specified period when it is in routine operation.
- 15 2. The optical-amplifier supervisory control method
according to claim 1, further comprising:
 informing a next node that the operation of the
optical post-amplifier is normal, together with the
number of wavelengths of an optical signal to be
20 transmitted using a supervisory control signal when the
input optical power of the optical post-amplifier falls
within a specified range and the gain of the optical
post-amplifier falls within a specified range.
- 25 3. The optical-amplifier supervisory control method

according to claim 2, wherein the optical pre-amplifier receives a notice of a normal operation state together with the number of wavelengths from the optical post-amplifier of the fore node, is started in the automatic level control mode, and stores the optical pre-amplifier gain in the memory after the optical pre-amplifier is started.

4. The optical-amplifier supervisory control method according to claim 1, wherein in the automatic level control in each specified period while the optical pre-amplifier is in routine operation, the optical pre-amplifier stores the gain in which a specified output level is obtained in the memory.

5. The optical-amplifier supervisory control method according to claim 2, wherein the optical pre-amplifier changes over the operation mode to the automatic level control mode while it is operated in the automatic gain control mode, backs up the gain of that moment when the optical pre-amplifier output falls within a target output range for longer than a specified time, and returns to the automatic gain control mode when a notice of a normal operation state from a fore node is continuously received for a specified time.

6. The optical-amplifier supervisory control method according to claim 3, wherein when the optical pre-amplifier transfers from the automatic level control mode to the automatic gain control mode, the output of the optical pre-amplifier is shut down if a gain value is not stored in the memory.

7. The optical-amplifier supervisory control method according to claim 3, wherein when the optical pre-amplifier is re-started after a power failure occurs and then is restored to a normal state, if an effective gain value of the optical pre-amplifier is stored in the memory, the optical pre-amplifier is re-started in the automatic gain control mode using said gain.

8. The optical-amplifier supervisory control method according to claim 3, wherein the serial number of the optical pre-amplifier and the serial number of the shelf in which the optical pre-amplifier is accommodated are stored in the memory; when the optical pre-amplifier is started after a power failure has occurred, the serial numbers of the optical pre-amplifier and the shelf are compared with the stored serial numbers of the optical pre-amplifier and the shelf; when these serial numbers

coincide, the optical pre-amplifier is started in the automatic gain control mode based on the stored gain values.

- 5 9. The optical-amplifier supervisory control system in an optical node including an optical pre-amplifier and an optical post-amplifier, comprising:

an optical post-amplifier controlled in the automatic gain control mode;

- 10 an optical pre-amplifier started in the automatic level control mode when it is started, controlled in the automatic gain control mode when it is in routine operation, and controlled in the automatic level control mode in each specified period when it is in routine
- 15 operation.

10. The optical-amplifier supervisory control system according to claim 9, wherein when the input optical power of the optical post-amplifier falls within a
- 20 specified range and the gain of the optical post-amplifier falls within a specified range, it is transmitted to a next node together with the multiplexed number of wavelengths of an optical signal to be
- 25 transmitted that the operation of the optical post-amplifier is normal.

11. The optical-amplifier supervisory control system according to claim 10, further comprising:

5 a memory unit storing the gain of the optical pre-amplifier after having been started after the optical pre-amplifier receives a notice of a normal operation state together with the multiplexed number of wavelengths from the optical post-amplifier of a fore node and after the optical pre-amplifier is started in the automatic control mode.

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12. The optical-amplifier supervisory control system according to claim 9, wherein the optical pre-amplifier stores the gain when a specified output level is obtained in the memory in controlling the optical pre-amplifier in the automatic level control mode in each specified period when the optical pre-amplifier is in routine operation.

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20 13. The optical-amplifier supervisory control system according to claim 10, wherein when the optical pre-amplifier is periodically changed to the automatic level control mode when being controlled in the automatic gain control mode, and the output of the optical pre-amplifier falls within a target output range for

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longer than a specified time, the gain of that moment is backed up, and when the optical pre-amplifier receives a notice of the normal operation state from the fore node continuously for a specified period, the optical pre-amplifier returns to the automatic gain control mode.

14. The optical-amplifier supervisory control system according to claim 11, wherein if no gain value is stored in the memory when the optical pre-amplifier transfers from the automatic level control mode to the automatic gain control mode, the output of the optical pre-amplifier is shut down.

15. The optical-amplifier supervisory control system according to claim 11, wherein when the optical pre-amplifier is re-started after a power failure occurs and is restored to a normal state, the optical pre-amplifier is re-started in the automatic gain control mode if the effective gain value of the optical pre-amplifier is stored in the memory.

16. The optical-amplifier supervisory control system according to claim 9, wherein the serial number of the optical pre-amplifier and the serial number of the shelf in which the optical pre-amplifier is accommodated are

stored in the memory, and when the optical pre-amplifier is started after a power failure has occurred, the serial numbers of the optical pre-amplifier and the shelf are compared with the stored serial numbers of the optical pre-amplifier and the shelf, and when both the serial numbers coincide, the optical pre-amplifier is started in the automatic gain control mode.